

CHANGES IN THE COMMUNITY

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This limitation is imposed by the process of sexual generation under which new individuals are created by the combination of two parents. and. owing their existence to two parents. are exact copies of neither of them. It is. of course. quite conceivable that a single individual should of itself have the power of producing offspring. and in the lowest classes of the animal and vegetable kingdoms we find that single organisms produce new organisms simply by dividing themselves. or by throwing out buds. Here then. we have reproduction without sex. which may act. moreover. with most extraordinary rapidity. the descendants of a single cell multiplying themselves into several millions within a few hours. But this process will not generally continue indefinitely. After a time the swarm appears to lose vitality. and can no longer increase by the division of single cells. Strength is recovered by the process of conjugation : two cells come together and blend their substance into a single mass, which subsequently breaks up into a fresh swarm of offspring. It is believed that the two conjugating cells have. before their union. developed the sexual characters which. in less primitive organisms, distinguish the sperm-cell of the male from the germ-cell of the female.

In all but the very simplest organisms. throughout both the vegetable and the animal

kingdoms. special organs of two kinds are developed for the production of these cells. Both kinds may be borne by the same individual. in which case, of course, no *individual* distinction of sex arises. Amongst plants, the sperm-cells are produced by the anthers of the stamens : the germ-cells by the ovary. These, again, are sometimes borne by different flowers—sometimes on different plants—but they usually form parts